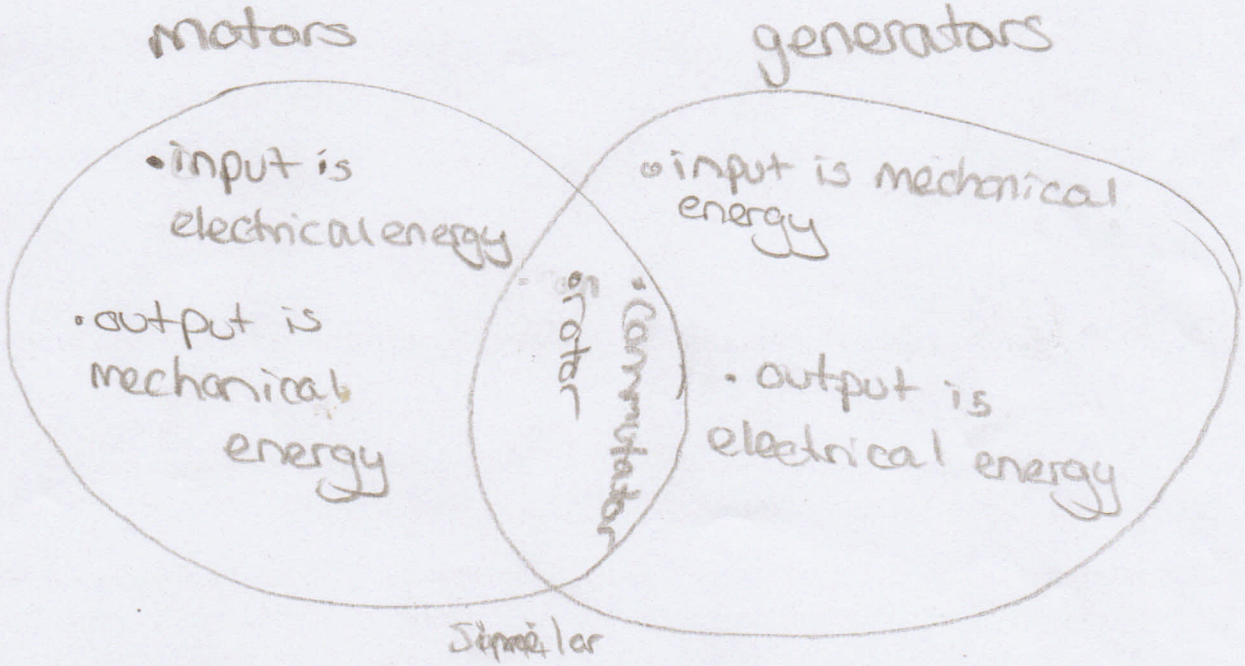
14. In order for an electric motor to work, the rotor must continue to spin. This is accomplished by changing the poles of the electromagnet at the correct time. The commutator does this, please explain how it works. (4 pts)

3/4 I think your on track but this is really hard to follow.

A commutator has two or three parts on it. Each part is magnetized differently. When the north end repelled the other north, it is reaching the south so then the commutator turns, lets the leaves touch the opposite magnet, and then that changes the rotors magnet to make it south so it repels again. This continues.

15. Electric motors and generators have many things in common, and a few key differences. State 2 differences and 2 similarities between the two below. You may create a chart or graphic to help you. (4 pts)

4/4



16. Use what you know about electricity and domains to explain how and why an electromagnet works. Be sure to talk about electric flow and domains in your answer. (Hint: do not just say the electricity makes it a magnet, tell me ***why***.) (4 pts)

2/4

When electricity is sent to the magnet, it automatically aligns the domains so they all go from north to south. Since the domains within the magnet are all going the same way, that allows the current to go from north to south only.

What aligns the domains about the electricity? Tell me why

-3

8. Electric motors are complicated devices with many moving parts.

False

9. Both electromagnets and permanent magnets are in motors.

True

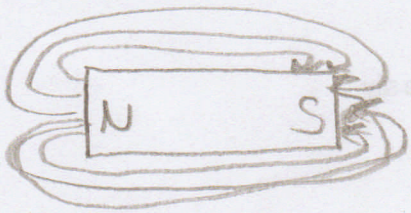
10. Magnets are found in computers, credit cards and TV's

True

Directions: Answer the questions below as best you can. Use complete sentences and/or draw labeled diagrams.

11. Draw the field lines for the following bar magnet. Be sure to include the direction. (3 points)

3/3



North to South

12. Draw the field lines for the following interaction of magnets. Be sure to include the direction. (3 points)

3/3

13. Only Iron, Nickel and Cobalt are considered to be magnetic, yet all materials **are a little** magnetic, most too little to be noticed by normal means. Please explain why I can say this. Think of what actually causes the magnetism inside of an object (hint: domains) (3 pts)

1.5/3

Doesn't really answer the question

To make these magnets stronger, run another magnet over them. This aligns the domains making the little magnetic material more magnetized. The more you do this the stronger and more aligned the domains become making the magnetic material stronger. These have aligned domains.

-1.5

23.5/31 = 76%

Chapter 8 Test Honors

Name [redacted]

Magnetism Class 4 White

Directions: Select the **best** answer for each question. (2pts each)

1. An electric motor converts_____ into_____.
   a. mechanical, electrical
   b. electrical, mechanical
   c. rotational, mechanical
   d. magnets, electricity

2. An electromagnet is unique in that it
   a. is easy to make
   b. can be very strong
   c. can be turned on and off easily
   d. B and C
   e. All of the above

3. _____ are the cause of all magnetism.
   a. Electrons
   b. Protons
   c. Neutrons
   d. Invisible forces

4. Electric motors and electric generators (for DC current) are_____
   a. very similar.
   b. very different.
   c. create the same output, but are constructed very differently.
   d. create different outputs, but are constructed very similar.

Directions: For each statement decide if it is true or false, write the **entire word** (true, false) in the space to the left. (1 pt each)

5. All metals are magnetic.
   False

6. All magnetic materials have fields around them.
   True

7. Generators convert mechanical energy to electrical energy.
   True

-3

14. In order for an electric motor to work, the rotor must continue to spin. This is accomplished by changing the poles of the electromagnet at the correct time. The commutator does this, please explain how it works. (4 pts)

4/4

The split seperates the ingoing current from the outgoing current. Therefore, the north ingoing current is always pushed towards the north permant magnet, which repel each othe to spin.

15. Electric motors and generators have many things in common, and a few key differences. State 2 differences and 2 similarities between the two below. You may create a chart or graphic to help you. (4 pts)

4/4

Motor	Both	Generator
power comes from batteries	Both are electromagnets	power comes from motion
outgoing ~~energy~~ is mechanical	Both contain Brushes	outgoing ~~energy~~ is electrical

16. Use what you know about electricity and domains to explain how and why an electromagnet works. Be sure to talk about electric flow and domains in your answer. (Hint: do not just say the electricity makes it a magnet, tell me ***why.***) (4 pts)

4/4

It works because the flow of electrons pulls on the magnetic domains. The electrons drag the domains so that they all have the same end facing the same direction. This magnetizes the previously non-magnetic object. Then, the magnetic field of the coils is multiplied by the magnetic field of the other object making the electromagnet really worked strong.

16/20

drop

8. Electric motors are complicated devices with many moving parts.

False

9. Both electromagnets and permanent magnets are in motors.

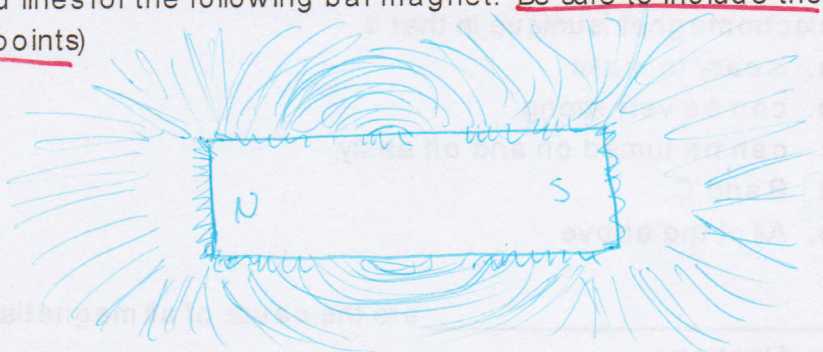
True

10. Magnets are found in computers, credit cards and TV's

True

Directions: Answer the questions below as best you can. Use complete sentences and/or draw labeled diagrams.

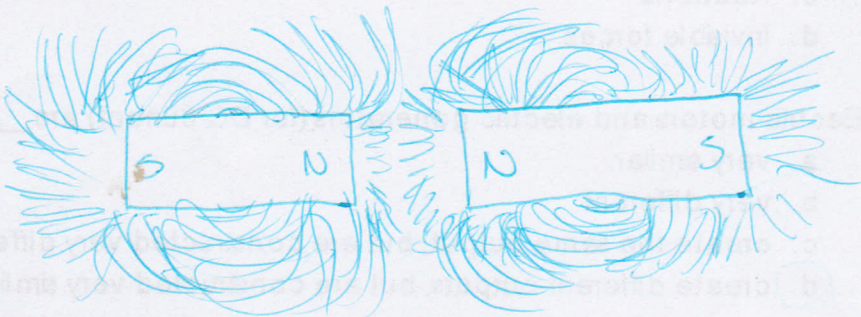
11. Draw the field lines for the following bar magnet. Be sure to include the direction. (3 points)



2/3

12. Draw the field lines for the following interaction of magnets. Be sure to include the direction. (3 points)

Lines should be consistnt from Pole to Pole and take a shorth to South direction 2/3



13. Only Iron, Nickel and Cobalt are considered to be magnetic, yet all materials **are a little** magnetic, most too little to be noticed by normal means. Please explain why I can say this. Think of what actually causes the magnetism inside of an object (hint: domains) (3 pts)

3/3

Because the magnetic domains in other materials aren't lined up, there isn't a strong enough magnetic field to be "noticed" by other magnetic materials, so they are not attracted.

-2

28/31

90%

Chapter 8 Test Honors

Name_____

Magnetism Class_____

Directions: Select the **best** answer for each question. (2pts each)

1. An electric motor converts_____ into_____.
   a. mechanical, electrical
   b. electrical, mechanical
   c. rotational, mechanical
   d. magnets, electricity

2. An electromagnet is unique in that it
   a. is easy to make
   b. can be very strong
   c. can be turned on and off easily
   d. B and C
   e. All of the above

3. _____ are the cause of all magnetism.
   a. Electrons
   b. Protons
   c. Neutrons
   d. Invisible forces

4. Electric motors and electric generators (for DC current) are_____
   a. very similar.
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5. All metals are magnetic.
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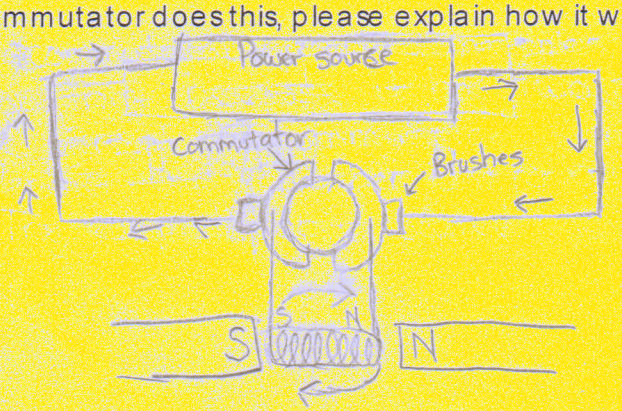
6. All magnetic materials have fields around them.
   True

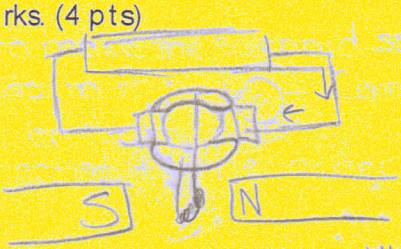
7. Generators convert mechanical energy to electrical energy.
   True

-1

14. In order for an electric motor to work, the rotor must continue to spin. This is accomplished by changing the poles of the electromagnet at the correct time. The commutator does this, please explain how it works. (4 pts)

Awesome picture but how does it switch the poles? A bit more needed 3/4





The inertsia will keep it going until the brushes touch the commutator again

15. Electric motors and generators have many things in common, and a few key differences. State 2 differences and 2 similarities between the two below. You may create a chart or graphic to help you. (4 pts)

4/4

Motor	Same	Generator
Input: Electric output: Mechanical energy	Commutator permanent magnets	Input: Mechanical energy output: electrical energy

16. Use what you know about electricity and domains to explain how and why an electromagnet works. Be sure to talk about electric flow and domains in your answer. (Hint: do not just say the electricity makes it a magnet, tell me ***why.***) (4 pts)

4/4

When electrons flow through ~~it~~ a non magnetic object, it lines up the domains. ~~Electrons alwa~~ wherever the electrons flow into will be the north end of the object and the south will be where they flow out. That lines up all the domains in the object.

8. Electric motors are complicated devices with many moving parts.

False

9. Both electromagnets and permanent magnets are in motors.

True

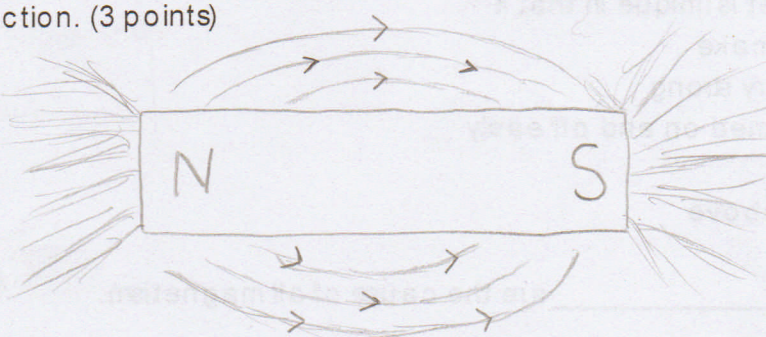
10. Magnets are found in computers, credit cards and TV's

True

Directions: Answer the questions below as best you can. Use complete sentences and/or draw labeled diagrams.

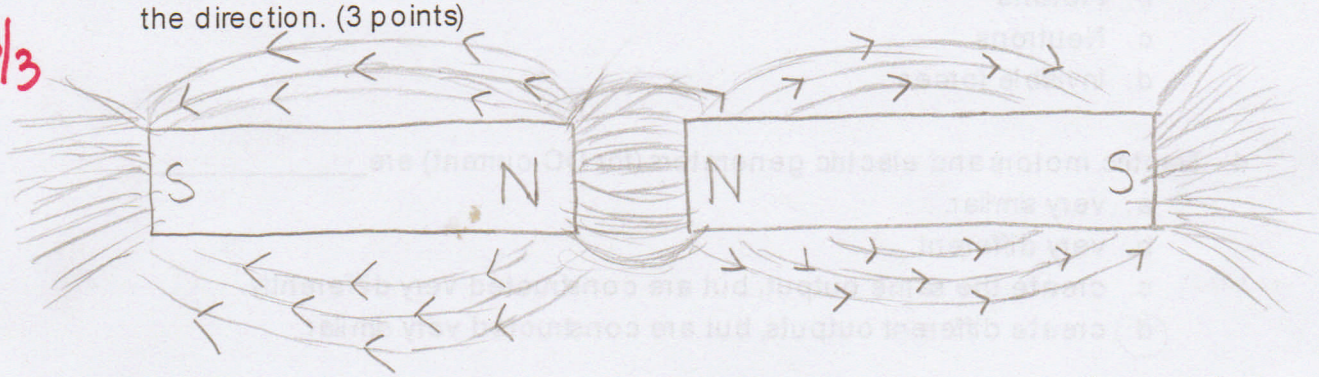
11. Draw the field lines for the following bar magnet. Be sure to include the direction. (3 points)

3/3



12. Draw the field lines for the following interaction of magnets. Be sure to include the direction. (3 points)

3/3



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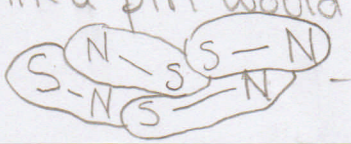
3/3

a strong magnet's domains would be alighned like this:

N N N N
| | | |
S S S S
N N N N
| | | |
S S S S

- That is why it is so strong!

other metal objects like a pin would have their domains like this:



- That is weak!

30/31 = 97%

Chapter 8 Test Honors

Name Caroline Parson

Magnetism Class 4w

Directions: Select the **best** answer for each question. (2pts each)

1. An electric motor converts _____ into _____.
   a. mechanical, electrical
   b. electrical, mechanical
   c. rotational, mechanical
   d. magnets, electricity

2. An electromagnet is unique in that it
   a. is easy to make
   b. can be very strong
   c. can be turned on and off easily
   d. B and C
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-1